Air Force
SBIR Advantage
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Offering a brief look at the vital research and development contributions made by the Small Business Innovation Research (SBIR) Program in direct support of the Air Force mission.

Air Force SBIR Update

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Air Force SBIR Enhancement Program

by Steve Guilfoos

Last year, the Air Force SBIR Program Management Team introduced the SBIR Enhancement Program as a pilot program. We are continuing that pilot program again this year. However, we've introduced some changes we believe will improve the program's effectiveness. These improvements to the SBIR Enhancement Program process help directly benefit the ultimate customer of our technologies, the PEOs and DACs.

The overall purpose of the SBIR Enhancement Program is to help small businesses increase their potential for commercialization into military systems and subsystems. In the Air Force, we have chosen to reward existing Phase II contract awardees who have successfully met their R&D objectives but have experienced an unexpected technical barrier during their Phase II work. The Enhancement Program will extend their existing Phase II contract by providing additional funding to resolve that unforeseen technical barrier. We still require non-SBIR matching money up to $250,000. However, we've changed the source of that money to be exclusively from military sources.

Continued on page 4...

SBIR Funding/ Topic Allocation

The Air Force Small Business Innovation Research (SBIR) program funds approximately $180 million each year in early-stage Research & Development (R&D) projects at small technology companies. These projects meet various Air Force needs and have commercial applications. SBIR funding is provided by a 2.5% tax on Air Force extramural R&D. The Air Force funding is distributed throughout the AFRL Technology Directorates (TDs), Air Logistic Centers (ALCs) and Test Centers (TCs). Funding distribution is based on the number of topics managed. The TDs, ALCs, and TCs receive a topic allocation and can increase the number of topics they manage by providing project management support for those topics that are allocated to the Program Executive Officers (PEOs), and Designated Acquisition Commanders (DACs). The PEOs receive their topic allocation based on their relative taxation. The chart on the right shows PEO/DAC FY01 and FY02 topic allocation.

We made the decision to reduce the number of topics in FY02 to better align with the trend of reduced extramural R&D budgets.

Number of Topic Allocations

PEO/DAC	FY01	FY02
Airlift and Trainer	05	08
Command and Control	33	10
Fighter Bomber	20	22
Joint Strike Fighter	02	02
Space	55	47
Weapons	08	21
AAC DAC	06	06
ASC DAC	06	06
ESC DAC	06	06
SMC DAC	06	06
TOTALS	**147**	**134**

SBIR Facts & Figures

SBIR Contracts Awarded To Woman and Minority Owned Small Business Firms for FY99

(Some firms are both woman/minority owned.)

Phase I Awards

30 Woman Owned Firms with Awards = $2,933,317

58 Minority Owned Firms with Awards = $24,308,175

Total Phase I contracts awarded by Air Force SBIR in FY99 = 426

Phase II Awards

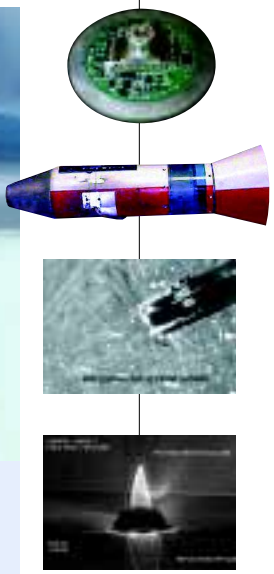
22 Woman Owned Firms with Awards = $16,048,318

32 Minority Owned Firms with Awards = $24,308,175

Total Phase II contracts awarded by Air Force SBIR in FY99 = 232

Source: Air Force database at BRTRC)

AF SBIR Impact



Micro-sized Video System to Measure Performance of Aircraft-fired Munitions

Air Force Requirement

The Air Force required a miniaturized, rugged "on board" imager that could capture images of aircraft-fired munitions on command, asynchronously, and transmit the real-time data to a ground station. The smaller size of modern munitions and the increased use of standoff-firing warheads mean that ground-based tracking cameras cannot adequately provide the critical position and attitude data needed to evaluate the flight performance and effectiveness of these weapons.

SBIR Technology

Xybion Electronic Systems Corporation used SBIR contracts to develop a Micro Reconnaissance Puck (MRP) system. The MRP features a battery-operated camera, lens, and radio frequency (RF) downlink system that is capable of determining precise target location and target dimension measurements yet is highly miniaturized and rugged enough to be shot out of a gun.

Payoff

The original MRP design has been flown on remotely piloted vehicles (RPV), light aircraft and smart-weapon flight bodies with outstanding results, including high-resolution video images.

Technology Transfer/ Commercialization

With the success of Xybion's SBIR work, three U.S. Air Force programs have now adopted the MRP system. The U.S. Navy is also using it for the Forward Air Support Strike Missile (FASM) and by the U.S. Army for "QuickLook" (an artillery launched targeting and BDA RVP). Derivative technology and variations of MRP are being applied to DARPA's Unattended Ground Sensor (UGS) program and several law enforcement programs and systems.

SBIR Partner

Xybion Electronic Systems Corp., San Diego, CA

Employees:

30

"The ability of this video camera to reset (or take a snapshot) anywhere in the video stream provides a unique capability for many different munitions, weapons and reconnaissance applications by providing photographic quality imagery that is automatically corrected for light. With an external GPS receiver, the GPS data is encoded on each image providing accurate positioning data. There are many military and commercial applications that this camera can be used for."

G. E. Keller, Jr.
SBIR Project Officer
AFRL/MNAV

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Air Force SBIR Enhancement Program

Selection Delegated to Field

The biggest management change was moving the selection process out of the AFRL headquarters. We've delegated our authority to the SBIR managers in the field to improve the program's responsiveness. This puts the program's success squarely upon the shoulders of our local SBIR managers. They, and their organizations, will choose the candidates and make the final determinations as to what SBIR projects receive this special funding.

This significant change requires that SBIR field offices review their high potential SBIR Phase II awards (that are in their second year) and to identify those efforts that are successful but that have come across a new unexpected technical barrier during their development. We will no longer simply request all Phase II awardees to participate in this process. This approach will help reduce unrealistic expectations on the part of small businesses.

With the help of the Air Force Technical Points of Contact, the field SBIR manager will review their on-going second year Phase II contracts and select those that meet the criteria. They will then work with the Air Force topic sponsor (or other interested DOD offices) to find matching money for funding further technology development.

As we segue into having the majority of the Air Force topics sponsored by the Program Executive Offices and the Designated Acquisition Commanders, we will continue to grow our potential DOD market for SBIR technologies. Our intent is to match dollar for dollar, up to $250,000, and to put this entire amount onto the extension of the on-going Phase II contract. We firmly believe that by requiring the matching money to be DOD money, we can better directly leverage our investment into a high potential commercialization opportunity directed into the DOD market.

Because this process is still in its infancy, we can continue to expect some growing pains. However, with the help of all those involved, we can expect this program to not only enhance the development of SBIR technology, but it will also enhance the actual commercialization of SBIR technology into DOD systems and subsystems – one of DOD's ultimate goals for the SBIR program.

"The Enhancement Program is not intended to simply fund more development efforts – rather it is intended to reward those that have been successful in meeting their objectives while unfortunately encountering a new unexpected technical barrier that will keep them from being ready to go on to their Phase III."

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Air Force SBIR Advantage

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The goal of the Air Force SBIR Program is to serve the technology needs of Air Force warfighters. It accomplishes its mission as part of the Air Force Research Laboratory's (AFRL) integrated research and development (R&D) team. AFRL's mission is to lead the discovery, development, and timely transition of affordable, integrated technologies that keep our Air Force the best in the world.

SBIR Advantage is published quarterly by the Air Force SBIR Program office. This publication offers an overview of AF SBIR issues and information. The purpose of *SBIR Advantage* is to provide Air Force, DoD, and other government leadership with additional insight into the vital contributions made by the SBIR program to Air Force R&D.

SBIR Advantage is available online at:
www.afrl.af.mil/sbir/index.htm